is reported to occur in Butte County. The tadpole shrimp is omnivorous and generally forages on the bottoms of pools in dense vegetation. Tadpole shrimp tend to be slow growing and are usually collected after the vernal pool has been ponded for 30 days.

The Conservancy fairy shrimp is federally listed as an Endangered species. This species is reported from large (>1.2 acres) and deep (>6 inches) turbid alkaline pools. This species of fairy shrimp has an extremely disjunct distribution. It is known from Tehama and Butte counties, in the northern part of the Sacramento Valley; Solano County, at the Jepson Prairie; Merced County, in the San Joaquin Valley near Haystack Mountain; and an isolated occurrence from northeastern Ventura County (Eriksen and Belk 1999).

The vernal pool fairy shrimp is federally listed as a Threatened species. This shrimp species is found in vernal pools throughout the Central Valley and western Riverside County in California, and near Medford, Oregon (Eriksen and Belk 1999). This fairy shrimp species occurs in neutral to slightly alkaline vernal pools throughout California's Central Valley, and in rock outcrop pools along the interior coast ranges, south of the Sacramento–San Joaquin Delta.

Typical habitat for fairy shrimp and tadpole shrimp in California includes vernal pools, ponded areas within vernal swales, rock outcrop ephemeral pools, playas, alkali flats, and salt lakes (Eng et al. 1990). Pool volume is important in determining potential shrimp habitat because deeper pools with a large surface area can more easily maintain their levels of dissolved oxygen. Similarly, deep pools will pond long enough to allow the shrimp to complete their life cycle.

None of these three invertebrate species is known to occur within the project area. However, vernal pool fairy shrimp are documented as occurring at two locations immediately adjacent to the FERC Project boundary (DFG 2004). Recent Relicensing studies indicate that 46.3 acres of suitable vernal pool invertebrate habitat exist within the project area, all occurring in the grasslands around Thermalito Forebay and Thermalito Afterbay (see Figures 5.7-4 and 5.7-4a through 5.7-4c in the SP-T2 report [DWR 2004c]).

Valley Elderberry Longhorn Beetle. USFWS listed the valley elderberry longhorn beetle as a Threatened species under FESA in August 1980. Since this initial listing, the known distribution of this species has increased greatly as a result of additional survey efforts. USFWS now identifies the species' range as throughout the Central Valley, up to 3,000 feet elevation on the eastern edge of the valley, and to the Coast Range watershed divide along the western side of the valley (USFWS 1984).

The beetle is restricted primarily to riparian habitat and adjacent uplands. The valley elderberry longhorn beetle is dependent upon its host plant, the elderberry (*Sambucus* sp.), throughout its life cycle. The valley elderberry longhorn beetle spends most of its 2-year life cycle boring within the stem in a larval stage. From March through June, the beetles emerge from the stem as adults to lay eggs, completing the life cycle (Barr 1991).

Elderberry bushes are one of the most common shrub species in high-terrace habitats within the portion of the OWA that borders the Feather River (Figures 4.5.1.2-3 and 4.5-1.2-3a through 4.5.1.2-3h). More than 90 acres of elderberry shrubs have been mapped on project levees in this area. Elderberry shrubs are rare at Lake Oroville, Thermalito Forebay, and Thermalito Afterbay. Several small patches of elderberry shrubs exist within the project area between Oroville Dam and Table Mountain Boulevard.

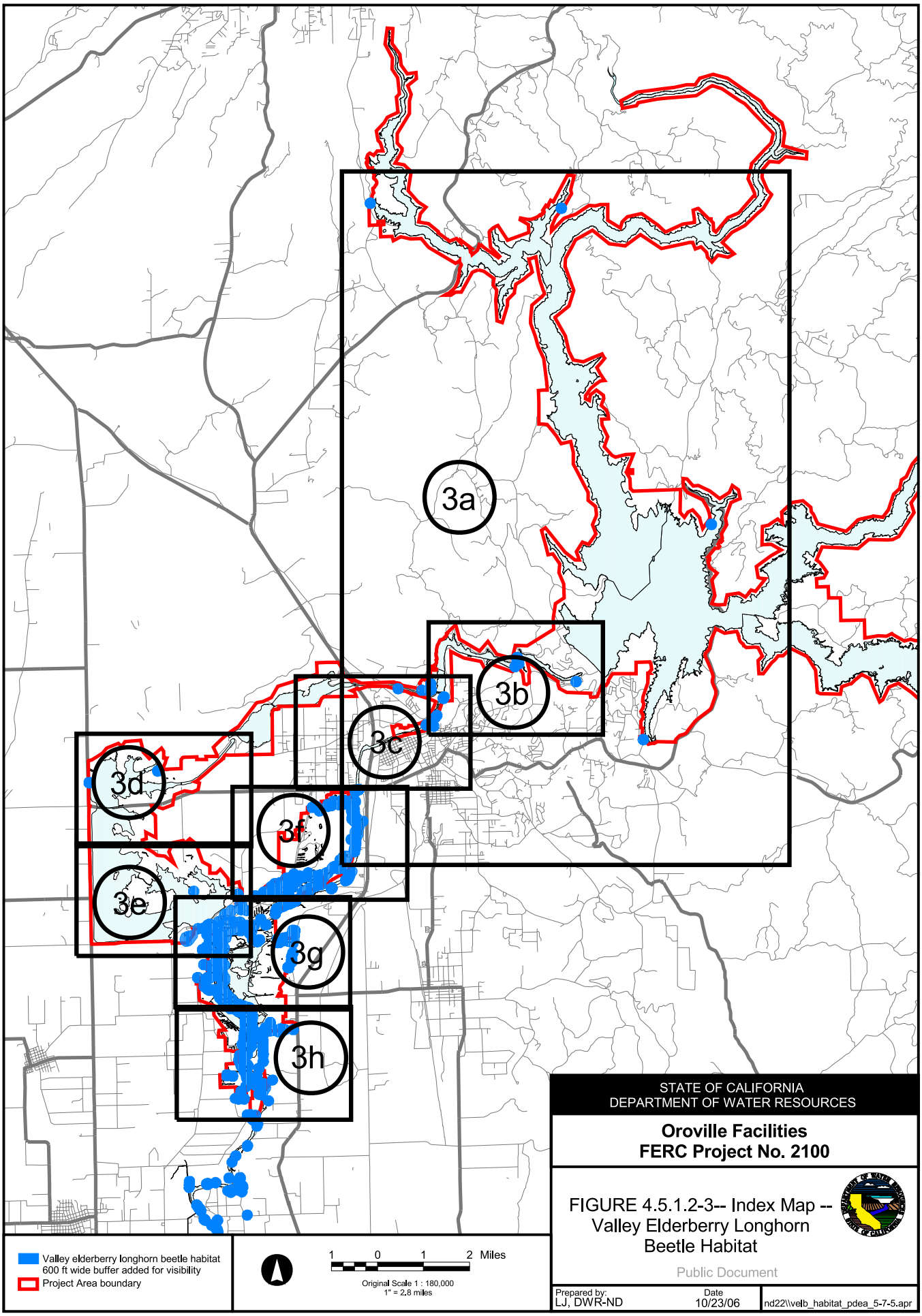
Other Federally Listed Species. Other species likely occurred in the project area historically but no longer occur in the area because of large-scale habitat modifications. Mountain yellow-legged frog, a federal Candidate species, is restricted to elevations ranging from 4,500 feet to more than 12,000 feet, but it occurs primarily above 5,900 feet (Zeiner et al. 1990b). This species is not found within the project area. Likewise, the project area is outside the range of California tiger salamander. There are no records for the species occurring within the FERC Project boundary (DWR 2004c). The only record of occurrence in Butte County was a 29-year-old record at Gray Lodge Wildlife Management Area, approximately 40 miles south of the project area. Subsequent surveys at Gray Lodge since 1965 have not recorded the presence of this species.

Western yellow-billed cuckoo is a federal Candidate species that requires deciduous riparian thickets or forests with dense, low understory near slow-moving waterways (Zeiner et al. 1990a). Potential cuckoo habitat within the project area and adjacent lands is restricted to riparian habitat within the OWA (Figure 4.5.1.2-4). Very few blocks of suitable habitat (dense low understory) greater than 25 acres and 300 feet in width exist within this area. Most of the areas within the OWA dominated by riparian vegetation are historic dredger tailings. No cuckoos were identified during surveys of potentially suitable nesting habitat within the project area during either 2002 or 2003 (DWR 2004c). Only one breeding pair was identified on the Feather River during the 1988 survey, and it was well downstream of the project area (Laymon and Halterman 1988). The lack of suitable habitat and of recent recorded sightings indicates that this species is not found within the FERC Project boundary.

State-Listed Species

Seven wildlife species listed under CESA may occur within the project vicinity (Table 4.5-4). Three of these species (bald eagle, giant garter snake, and yellow-billed cuckoo), which are protected under both FESA and CESA, have already been discussed in this section.

Swainson's Hawk. DFG listed the Swainson's hawk as a Threatened species under CESA in 1983. This species is not federally listed. The statewide population of Swainson's hawk was estimated at 375 pairs in 1980 (Bloom 1980). By 1993, it was estimated that the population of this migratory species in California had declined by 91 percent (DFG 1993).



STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES

Oroville Facilities
FERC Project No. 2100

FIGURE 4.5.1.2-3-- Index Map -- Valley Elderberry Longhorn Beetle Habitat

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